Physical Science Curriculum Support Document

		COMPETENCY GOAL 5: The learner will build an understanding of the structure and properties of matter.		
Days	**Objective**	**Content Description**		**Suggested Activities**
7/180	**5.01** Develop an understanding of how scientific processes have led to the current atomic theory. • Dalton's atomic theory. • J. J. Thomson's model of the atom. • Rutherford's gold foil experiment • Bohr's planetary model. • Electron cloud model.	• Illustrate how observations and conclusions from experimentation changed atomic theory over time. • Explain Dalton's atomic theory, which states the following: 1) Chemical elements are made up of atoms. 2) The atoms of an element are identical in their masses. (*Be sure students understand that this was shown to be false with the discovery of isotopes.*) 3) Atoms of different elements have different masses. 4) Atoms only combine in small, whole number ratios such as 1:1, 1:2, 2:3 and so on. • Explain and illustrate J. J. Thomson's plum pudding model. • Explain Rutherford's gold foil experimental conclusions. The atom is mainly empty space with a dense positively charged center. • Explain Bohr's model. Show how electrons are arranged in energy levels. Illustrate models with electrons in energy orbits. • Describe the electron cloud model and identify the number of electrons in each level ($2n^2$), focusing on the following levels: 2, 8, 18, and 32.		• Research scientists and their contributions to atomic theory. • Visually represent the progression of atomic theory • Build models of atoms • *(Bohr models are being used to give students a two-dimensional view of energy levels surrounding the nucleus. Bohr was only correct about the electron in the hydrogen atom orbiting the nucleus like a planet around the sun. The modern view explains electron orientation.)*
14/180	**5.02** Examine the nature of atomic structure: • Protons.	• Describe the charge, relative mass, and the location of protons, electrons, and		• **Inquiry Support Activity:**